
Survey of Public Knowledge about Digestive Health and Diseases: Implications for Health Education

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Synopsis

Increasing emphasis in recent years has been placed on health promotion, prevention, and the

self-management of health care. These strategies presume the public has sufficient levels of relevant health information, as well as necessary attitudes and skills for the effective use of this information in the management of their own health care. This study tests this assumption as it relates to the level of public knowledge of digestive health and disease, a major health concern affecting an estimated 1 in 10 Americans.

This paper reports results of a telephone survey of a representative national sample administered to 1,250 Americans in May 1983 that was designed to assess their level of information about digestive health and disease, comfort in communicating about digestive problems, and preference for health information sources.

The results indicate that the American public is largely uninformed and misinformed about digestive health and disease, and they underscore the need for disseminating relevant health information about digestive health and disease to the public to facilitate prevention of digestive health problems and self-management of digestive health care. Health information dissemination is severely complicated by the widespread stigma associated with digestive topics, manifested in the American public's general discomfort in communicating with others about digestive health. These factors necessitate development of sensitive and pervasive digestive health promotion and education programs in the United States.

INCREASING EMPHASIS IN RECENT YEARS has been placed on preventive medicine and the self-management of health care (1). Health information is a crucial element in a preventive approach to public health care because relevant information empowers individuals to take charge of their own health (2). Health information is used to educate the public about potential health risks and appropriate strategies for minimizing health risks. Prevention can only be successful if the public has sufficient levels of health information, and the

attitudes and skills necessary for the effective use of this information in the management of their own health care (3,4). This study evaluates the level of health information Americans possess about digestive health and disease, a major health concern affecting an estimated 1 in 10 Americans (5).

Digestive disease is a major national health problem. It "is a significant cause of mortality, responsible for about 9 percent of all deaths, for about 10-15 percent of all hospital admissions,

about one-third of all major operations, about 11 percent of chronic illness within the population" (6a). Approximately 20 million men, women, and children suffer from digestive diseases (7). Roth reports that "about half of all cancer is digestive disease cancer" (8). A national health survey of more than 1 million Americans revealed that 44 percent of all male respondents and 55 percent of all female respondents had complaints concerning the digestive tract (9). Digestive disorders are a major cause of industrial disability and an increasingly expensive national health problem, accounting for an \$8.1 billion annual national expenditure in 1967 (10), \$11.5 billion in 1975 (6), and \$35 billion in 1982 (11). It has been estimated that 10 percent of all personal health expenditures in the United States is related to digestive disease (6).

Despite the enormous significance, pervasiveness, and cost of digestive disease, gastroenterologists have long been concerned with the "lack of public recognition of the impact of digestive disease on the nation's health" (10a). Bakal and Blicksilver assert that despite the magnitude of the problem, the American public knows very little about digestive health problems or treatment and is generally ill-informed and misinformed about digestive disease (11). Our study examines the level of Americans' knowledge about digestive health, diseases, and treatment and the beliefs and attitudes Americans hold about digestive disease and digestive health.

Methods

A telephone survey was conducted with a representative national cross section of 1,250 Americans, 18 years old or older, telephoned from New York City between May 12 and May 20, 1983, by trained interviewers employed by Louis Harris and Associates, Inc. The survey instrument contained 19 multiple-item questions, with a total of 85 items administered to respondents. The interviews generally took about 20 minutes each to administer. The telephone survey was based on a national sample of the civilian population of the United States, including Alaska and Hawaii, but excluding those persons in prisons, hospitals, and religious or educational institutions. The sample was based on information on the population of each State as updated by annual estimates of the Bureau of the Census (12).

The national sample was stratified in two dimensions (geographic region and metropolitan residence), ensuring that the sample reflected, within 1

percent, the actual proportion of those living in the country in various regions and metropolitan areas (13). Within each stratum, the selection of the sampling location (cities, towns, and townships) was achieved through a multistage sampling procedure. Households were selected by random-digit dialing, ensuring a sample within the correct demographic balance by guaranteeing inclusion in the sample of persons who have unlisted telephones (14).

In the interviews respondents were asked a number of questions to assess their knowledge and attitudes about digestive diseases in comparison with other health problems. They were asked how familiar they were with the nature and purpose of digestive disease health care procedures, if they would agree or disagree with statements concerning the causes and treatments of digestive health problems, and how comfortable they would feel discussing different health problems, including digestive problems. In addition, respondents were asked how useful different sources were in providing information about digestive health and disease.

Results

Information and knowledge level.

Public understanding of the digestive system. Americans were very accurate in identifying digestive system organs. Most respondents correctly identified the six digestive organs listed (stomach, intestines, esophagus, rectum, pancreas, and liver) as digestive organs. Respondents were less accurate in identifying the three nondigestive organs listed (lungs, adrenal glands, and kidneys), with most correctly identifying only the lungs as a nondigestive organ. In fact, 58 percent of the research sample incorrectly identified the kidneys as being a digestive organ.

Respondents who considered themselves to be knowledgeable about digestive disease were more likely than respondents as a whole to identify some of the more obscure digestive organs (esophagus, pancreas, and liver) as being part of the digestive system. The esophagus was considered as part of the digestive system by 71 percent of the sample as a whole, with 10 percent not sure, and by 78 percent of those who considered themselves knowledgeable about diseases, with 5 percent not sure. Similarly, the pancreas was considered to be part of the digestive system by 68 percent of all respondents, with 15 percent not sure, and by 75

Table 1. The public's understanding of the function and purpose of digestive organs

Organ	Percent who say they—	
	Know a great deal or a fair amount	Know only a little or practically nothing at all
Heart	79	29
Stomach	58	42
Kidneys	54	46
Intestines	45	55
Liver	41	58
Colon	37	63
Gallbladder	32	68
Adrenal glands....	22	77

Table 2. The public's knowledge of digestive diseases in comparison with other disorders

Disorder	Percent who say they—	
	Know a great deal or a fair amount	Know only a little or practically nothing at all
Cancers	58	42
Heart disorders	55	44
Respiratory diseases ..	47	52
Circulatory diseases ..	38	61
Digestive diseases....	33	66
Disorders of the nervous system	33	67

percent of those who considered themselves knowledgeable about digestive diseases, with 10 percent not sure. The liver was considered to be part of the digestive system by 65 percent of the respondents, with 8 percent not sure, and by 71 percent of those persons who considered themselves knowledgeable about digestive diseases, with 5 percent not sure.

Public understanding of digestive organs. Americans were considerably less confident in identifying the function and purpose of digestive organs than they were in identifying digestive organs. Although 24 percent of the respondents claimed to know “a great deal” about the purpose and functions of the heart, only 17 percent made the same claim for the stomach and 13 percent for the intestines. Only 11 percent claimed to know a great deal about the liver, gallbladder, or colon. This suggests that scarcely 1 in 10 Americans have a significant understanding of the purpose and functions of digestive organs. Most respondents conceded knowing little or practically nothing about gallbladder, colon, liver, and the intestines. Of the digestive organs tested, a majority of the respon-

dents considered themselves knowledgeable about only the stomach, with 58 percent saying they knew at least a fair amount about its purpose and functions (table 1).

Knowledge of digestive diseases and other disorders. The American public knows less about digestive diseases than it does about other major health care problems. Only 9 percent of the respondents claimed to know a great deal about the nature and symptoms of digestive diseases, compared with 18 percent who said they knew a great deal about cancers and 15 percent who said they knew a great deal about heart disorders. Digestive diseases shared the lowest ranking, with nervous system disorders, in the public's assessment of their knowledge of major health problems (table 2).

It is interesting to note that respondents who had seen a physician or had been hospitalized for a digestive disease were no more likely than all other respondents to consider themselves knowledgeable about digestive diseases. In fact, 11 percent of those persons who had seen a physician and 13 percent of those persons who had been hospitalized for a digestive health problem said they knew a great deal about digestive diseases, insignificantly higher than the 9 percent of all other respondents who claimed to know a great deal about digestive diseases. Patients' knowledge of digestive diseases differed from other respondents' only in that they were significantly less likely to know “practically nothing at all” about the nature and symptoms of digestive diseases.

Identification of digestive disorders. In view of the limited understanding of digestive organs and modest assessment of knowledge of digestive diseases, it is not surprising that Americans have little knowledge of which disorders are actually digestive in nature. Of the eight digestive diseases tested (ulcer disease, gallstones, cancer of the colon, cirrhosis of the liver, diverticulitis, hemorrhoids, hepatitis, and Crohn's disease or ileitis), five were classified correctly by the majority of respondents, and three (hemorrhoids, hepatitis, and Crohn's disease) were classified incorrectly by the majority of respondents. Those respondents who considered themselves to be knowledgeable about digestive disease identified six digestive diseases correctly and two (hemorrhoids and hepatitis) incorrectly.

For example, 80 percent of respondents correctly identified ulcer disease as a digestive disease, with only 6 percent not sure. Persons who considered

themselves knowledgeable about digestive diseases in general thought of ulcer disease as a digestive disease by an even higher 86 to 9 percent. Sixty-three percent of respondents correctly identified gallstones as a digestive disease and 28 percent did not, 53 percent correctly identified cancer of the colon and 33 percent did not, 49 percent correctly identified cirrhosis of the liver and 39 percent did not, and 34 percent correctly identified diverticulitis and 22 percent did not. Of those respondents who considered themselves knowledgeable about digestive diseases, 72 percent correctly identified gallstones as a digestive disease and 22 percent did not, 60 percent correctly identified cancer of the colon and 30 percent did not, 53 percent correctly identified cirrhosis of the liver and 36 percent did not, and 48 percent correctly identified diverticulitis and 35 percent did not.

Among the digestive diseases incorrectly identified, 60 percent of respondents did not think of hemorrhoids as a digestive disease and 33 percent did, 62 percent did not think of hepatitis as a digestive disease and 22 percent did, and 30 percent did not think of Crohn's disease as a digestive disease and 19 percent did. Of those persons who considered themselves familiar with digestive diseases, 59 percent did not think of hemorrhoids as a digestive disease and 36 percent did, 61 percent did not think of hepatitis as a digestive disease and 26 percent did, and the responses were split about evenly for Crohn's disease (28 percent versus 27 percent), with 45 percent unsure. Of the two nondigestive diseases surveyed, diabetes and arthritis, diabetes was incorrectly identified as a digestive disease 49 percent to 43 percent, and arthritis was correctly identified as a nondigestive disease 86 percent to 8 percent.

Public knowledge of specific digestive diseases. Consistent with Americans' limited understanding of digestive diseases in general is a distinct lack of knowledge about specific digestive diseases. For example, 88 percent of respondents considered themselves not knowledgeable about Crohn's disease, 70 percent not knowledgeable about colitis, 63 percent not knowledgeable about hepatitis, 63 percent not knowledgeable about cirrhosis of the liver, and 54 percent not knowledgeable about ulcer disease. Americans divided evenly (50 to 50 percent) on how much they claimed they knew about the symptoms and nature of hemorrhoids, with 17 percent saying they knew a great deal, 33 percent saying they knew a fair amount, 32 percent saying they knew only a little,

and 18 percent saying they knew practically nothing at all.

In contrast to the low levels of self-reported knowledge about digestive diseases, 63 percent considered themselves knowledgeable about arthritis, a nondigestive disease. Multiple sclerosis, another nondigestive disease, ranked below colitis and ahead of only diverticulitis and Crohn's disease in terms of how much respondents said they knew about it. Seventy-two percent of respondents considered themselves not knowledgeable about multiple sclerosis.

Public familiarity with diagnostic tests. Consistent with low levels of perceived knowledge about digestive diseases is the public's lack of familiarity with diagnostic procedures for digestive disorders in comparison with tests used in diagnosing other disorders. Although approximately 80 percent of Americans were familiar with electrocardiograms, only 54 percent were familiar with gastrointestinal x-ray tests. Fifty-two percent of respondents were unfamiliar with stool tests for hidden internal bleeding, and 47 percent were familiar with the stool tests; 60 percent were unfamiliar with examinations using an endoscope, and 39 percent were familiar with them.

Myths the public holds about digestive diseases. Respondents were asked to agree or disagree with several specific statements about digestive disease. Eighty-three percent correctly agreed that "high-fiber foods help relieve and prevent most digestive problems," 12 percent did not agree; 65 percent correctly agreed that "problems other than alcohol abuse often lead to cirrhosis of the liver," and 28 percent did not agree (table 3). Respondents correctly disagreed, 47 to 40 percent, with the statement "the most common cause of rectal bleeding is cancer of the colon."

There were also several statements about digestive disease that most respondents responded to incorrectly. For example, 62 percent incorrectly agreed with the false statements, "a bowel movement each day is necessary for good digestive health" (36 percent did not agree); 52 percent incorrectly agreed that "ulcerative colitis and Crohn's disease are usually brought on by emotional stress" (25 percent did not agree). Also, respondents disagreed, 52 to 45 percent, with the true statement "high-powered business executives are no more likely than most people to develop ulcers." The depth of these misperceptions is evident in the fact that they were shared by even

Table 3. Percent of a national sample who agree or disagree with statements about digestive health

Statement	Total N = 1,250	Education				Knowledge- able about digestive diseases, N = 407	Experience with digestive diseases		Sex	
		Eighth grade, N = 66	High school, N = 621	Some college, N = 277	College graduate, N = 282		Seen a doctor, N = 824	Been hospit- alized, N = 541	Male, N = 605	Female, N = 645
"High-fiber foods help relieve and prevent digestive problems"										
Tend to agree	83	63	80	88	91	87	84	84	84	84
Tend to disagree	12	15	15	7	7	10	11	12	11	12
Not sure	5	22	5	5	2	3	5	4	6	5
"Problems other than alcohol abuse often lead to cirrhosis of the liver"										
Tend to agree	65	69	70	62	56	68	67	68	60	70
Tend to disagree	28	15	24	30	39	27	27	26	34	22
Not sure	7	17	6	8	5	5	6	6	6	8
"A bowel movement each day is necessary for good digestive health"										
Tend to agree	62	70	65	60	55	54	61	60	71	54
Tend to disagree	36	18	34	39	43	43	37	38	27	44
Not sure	2	9	1	2	2	2	1	1	2	2
"Ulcerative colitis and Crohn's disease are usually brought on by emotional stress"										
Tend to agree	52	48	52	49	57	60	55	54	51	53
Tend to disagree	25	14	24	28	26	23	25	25	23	26
Not sure	23	38	24	23	17	18	21	21	26	20
"High-powered business executives are no more likely than most people to develop ulcers"										
Tend to agree	45	57	46	43	43	45	45	45	47	44
Tend to disagree	52	24	52	54	56	53	53	53	51	52
Not sure	3	19	2	3	2	2	2	2	2	4
"The most common cause of rectal bleeding is cancer of the colon"										
Tend to agree	40	56	45	32	32	38	37	36	40	40
Tend to disagree	47	16	44	52	55	53	52	54	46	48
Not sure	13	28	10	15	13	9	11	11	14	12

those respondents who considered themselves knowledgeable about digestive diseases (table 3).

Attitudes toward communicating about digestive health and disease.

Attitudes about discussing digestive health problems at work. If digestive diseases are considered less serious than other disorders by the American

public, they also carry the distinction of being the disorders employees are least comfortable discussing with their supervisor at work. Although 63 percent of those respondents who were regularly employed and reported regularly to a supervisor said they would feel very comfortable discussing chest pains with their supervisor, only 20 percent said they would feel very comfortable discussing a constipation problem. Similarly, while 47 percent

would feel very comfortable discussing the problem if they were coughing up blood, only 28 percent would feel very comfortable discussing a rectal bleeding problem, 26 percent would feel very comfortable discussing hemorrhoids, and 26 percent would feel very uncomfortable discussing hemorrhoids with their supervisor. Of the digestive disorders tested, ulcers were the only condition for which most (51 percent) of employees would feel very comfortable discussing the problem. In fact, 27 percent of employees reported they would feel somewhat uncomfortable, and 20 percent would feel somewhat or very uncomfortable discussing this problem with a supervisor.

College graduates were less likely to feel comfortable discussing digestive health problems with their supervisor than employees as a whole, while those who have attended or graduated from high school were more likely to feel comfortable. Upper-income employees (those with an income of \$35,001 or more) were less likely to feel comfortable discussing digestive health problems than middle-income employees (\$15,001—\$25,000). This suggests that middle and lower demographic strata Americans will be more responsive to communication efforts about digestive diseases than their more upscale counterparts.

Public perceptions of the seriousness of digestive diseases. While respondents as a whole perceived all eight of the diseases tested to be serious health problems, they distinguished sharply between such diseases as cancers (which 91 percent considered very serious) and heart disorders (which 85 percent considered very serious), and digestive diseases, which only 38 percent considered very serious. Of the eight disorders tested, digestive diseases rank last in terms of being perceived as a very serious health problem, behind cancers, heart diseases, respiratory diseases, diabetes, disorders of the nervous system, circulatory disorders, and arthritis.

Sources of information about digestive diseases. Respondents tended to consider all eight of the sources of information about digestive health tested in this study to be at least somewhat useful. Even “advertising for nonprescription drugs used to treat digestive diseases,” which ranks at the bottom of the list, was considered somewhat or very useful, by 56 percent. There are wide variations, however, among the different sources of information respondents considered to be very useful (table 4).

Fully 84 percent of respondents identified a

Table 4. Usefulness of different sources of information about digestive diseases, as perceived by a national sample of 1,250 persons (percent)

Sources of information on digestive diseases ¹	Sources perceived to be—				
	Very useful	Somewhat useful	Not very useful	Not useful at all	Not sure
A discussion with your doctor	84	13	1	1	1
An information center you could call, run by a nonprofit digestive disease group	49	35	7	6	3
Special health programs on TV	42	42	10	4	2
Public service announcements on radio or TV, made by a nonprofit digestive disease group	39	43	10	6	2
A discussion with your pharmacist	39	42	12	5	2
Articles in newspapers or magazines, placed by a nonprofit digestive disease group	37	46	10	6	2
Labels or packages of nonprescription drugs	30	33	23	12	3
Advertising for nonprescription drugs used to treat digestive diseases	17	39	24	16	3

¹ Question: If you wanted or needed information on digestive diseases, that is, on diseases of the stomach, rectum, liver, colon, gallbladder, intestines, pancreas, or esophagus, how useful would you find each source of information—very useful, somewhat useful, not very useful, or not useful at all?

discussion with their physician as a very useful source of information about digestive health, while only 39 percent would find a discussion with their pharmacist useful. Nearly half of all respondents (49 percent) found “an information center you could call, run by a nonprofit digestive disease group,” to be a very useful source of information, a greater proportion of respondents than would find any other source of information (except the physician) very useful. The mass media were considered to be good sources of digestive health information, especially electronic media. Special health programs on television were considered a very useful source of information by 42 percent of respondents, and an additional 42 percent would find such programs somewhat useful. Public service announcements on radio and television “made by a nonprofit digestive disease group” were considered very useful by 39 percent and

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somewhat useful by an additional 43 percent. The sources of information that rely more on reading, rather than listening or talking, all ranked less well. For example, 37 percent of respondents found articles in newspapers and magazines placed by a nonprofit digestive disease group very useful, and an additional 46 percent found such articles somewhat useful. Labels on packages of nonprescription drugs were rated as being very useful by 30 percent of the respondents and somewhat useful by 33 percent of the respondents. Only 17 percent of the respondents found advertising for nonprescription drugs to treat digestive diseases to be very useful, and an additional 39 percent found such advertising to be somewhat useful.

Demographic analysis of perceptions of digestive health and disease. The research sample was differentiated into subgroups according to the following demographic variables: region of residence, size of place of residence, age of respondent, education level of respondent, race of respondent, sex, and total household income (in 1982 from all sources before taxes). The sample was further differentiated into subgroups based on the following respondent information and behavioral characteristics: knowledgeable about digestive disease, has seen a physician for a digestive disease problem, has been hospitalized for a digestive health problem. Respondents who had some direct experience with digestive diseases did not generally perceive digestive diseases significantly differently than those respondents that had no experience with digestive diseases. Respondents with direct digestive disease experience were no more likely than respondents as a whole to consider digestive diseases as either a "very serious" or "somewhat serious" health risk. They were also no more

comfortable than the total sample discussing digestive health problems and varied little from all respondents in response to the various statements about digestive health.

Discussion

Few Americans considered themselves knowledgeable about digestive diseases. Only a handful more considered themselves knowledgeable about the purpose and function of most digestive organs. Americans said they knew "only a little" or "practically nothing at all" about most specific digestive diseases, and they did not perceive digestive disorders as a very serious health problem. Complicating this lack of information and understanding are several widespread myths about digestive health. Americans attach a stigma to digestive health problems that results in a marked reluctance to discuss digestive health. This stigma restricting communication about digestive diseases perpetuates the lack of public knowledge about digestive diseases and discourages individuals from seeking relevant digestive health information.

Despite the public's limited knowledge of digestive disorders, the associated myths ascribed to digestive diseases, and a marked reluctance to discuss digestive health problems, Americans are knowledgeable when they are asked whether or not certain organs are actually part of the digestive system. This suggests a base of information and a limited awareness on which to build greater public recognition and understanding of digestive health and diseases.

The study results underscore the importance of ensuring that the public and general practice physicians are well-informed about digestive diseases. By an overwhelming margin, Americans were most likely to consider their own physician a very useful source of information about digestive diseases. Efforts must be taken to ensure that there is minimal information gap between the medical research community and health care providers. It must be noted that the great majority of digestive health care and information is not delivered by gastroenterological experts. Rather, such care is provided by family practitioners, industrial physicians, school nurses, pharmacists, and even by the general public—parents, friends, and colleagues—serving in expert roles. Without question, the survey results verify the need for substantial attention to increased public health education. Collectively these findings point to the severe limitations in the public's ability to take a useful

role in the maintenance of its own digestive health care, to recognize signs that indicate potential disorders of the digestive system, to know when the assistance of a health professional is needed, to comply with prescribed drug therapy and other treatment, or even to discuss problems comfortably with others or to help others carry out these activities effectively.

Thus, a primary concern is with translating and disseminating current health knowledge to the public directly, as well as through intermediary helpers, to promote prevention and effective self-management of health care. Achieving this objective is no simple matter. Not only is knowledge lacking, but public attitudes toward digestive disease complicate health education efforts. Digestive diseases are stigmatized, regarded as not serious, and bear the brunt of countless scatological jokes, particularly among the educated.

The factors involved in public diffusion of digestive health and disease information are numerous, and the relationships between them are mutually inhibiting. The general lack of public health knowledge is manifested in misinformation, myth, and dysfunctional attitudes, in which digestive diseases are regarded as a topic of embarrassment and as not serious problems. Dysfunctional attitudes lead to a lack of receptivity to information about the topic and encourage distortion of what information may be provided. Additionally, the phrase "digestive diseases" is anything but a household word. The term "cancer," for instance, refers to a number of health problems and a number of sites and organs and brings to mind the image of a single entity. In contrast, "digestive diseases" does not enjoy either the visibility or sense of collective identity. In turn, lack of recognition and resistance to new information about digestive diseases perpetuates the lack of knowledge, bringing us full circle in a closed destructive information loop (15,16).

Given the number of digestive diseases, disorders, and organs; the stigma; and the lack of clearly defined and measurable preventive measures, the educational problem—the problem of opening the closed information loop—is extremely complex. The importance of narrowing the information gap through health education cannot be overestimated; it is essential for increased financial support of digestive disease research, development of advances in digestive health care, promotion of public prevention and self-management of digestive problems, and improved national digestive health (16a).

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